

NEW SPECIES OF CERATOSTEMA  
(ERICACEAE: VACCINIEAE) FROM THE  
NORTHERN ANDES

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*Ceratostema* is a genus of primarily Andean blueberries consisting of 23 species. Most are found in eastern Ecuador, but one is endemic to southern Colombia, two to northern Peru, and one to the Guayana Highland in western Guyana. The plants are scandent or, more commonly, erect shrubs to 3.5 m tall. They may be terrestrial or sometimes epiphytic and possess large (2–5 cm long), fleshy, waxy corollas in striking shades of bright red or orange. Some have colorful floral bracts; others, large superficial or subsurface woody burls. All are probably hummingbird pollinated. The genus is of little economic importance. *Ceratostema alatum*, commonly known as “pera silvestre” or “manzanilla” in Tungurahua Province, Ecuador, is eaten locally; the flavor suggests that of the pear (Popenoe, 1924). I have collected fruits of *C. alberti-smithii* that measured about 3–3.5 cm in diameter and were very juicy although not particularly sweet.

The genus was first described by A.-L. de Jussieu in 1789, the name referring to the long “horned stamen” (the “horns” are the long anther tubules). It was last treated by A. C. Smith (1952), who gave a brief discussion and a key to the 16 species then recognized. It is characterized by: calyx articulate with the pedicel (articulation obscure in one species); corolla large and usually conspicuously ventricose basally, deeply lobed, the lobes usually very long and narrow; stamens with the filaments distinct or connate, the thecae strongly granular (or papillate), and the tubules very long and thin, dehiscent by short, oblique clefts. *Ceratostema* is most closely related to *Semiramisia* Klotzsch, as was discussed by Luteyn (1984).

KEY TO THE SPECIES OF CERATOSTEMA

1. Leaves basally attenuate, acute, or rounded, not cordate and amplexicaul.
  2. Calyx limb very conspicuous, lobes at least 10 mm long.
    3. Hypanthium terete, not costate or winged.
      4. Flowers 4-merous; leaf blade 4–6 × 1.2–1.8 cm; flowers solitary or paired, corolla lobes ca. 20 mm long. . . . . *C. flexuosum* (A. C. Smith) Macbr.
      4. Flowers 5-merous; leaf blade 9–13 × 3–5 cm; flowers in fascicles of 4 to 6, corolla lobes 4–7 mm long. . . . . *C. fasciculatum* Luteyn.
    3. Hypanthium 10-costate or winged.

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- 5. Hypanthium 10-costate. . . . . *C. alberti-smithii* (Sleumer) Sleumer.
- 5. Hypanthium clearly winged.
  - 6. Leaves glabrous beneath; calyx 30–45 mm long; flowers racemose, essentially glabrous. . . . . *C. reginaldii* (Sleumer) A. C. Smith.
  - 6. Leaves soft-pilose beneath; calyx ca. 18 mm long; flowers solitary, densely pilose. . . . . *C. lanceolatum* Benth.
- 2. Calyx limb comparatively inconspicuous, lobes 1–7 mm long.
  - 7. Calyx lobes minute, scarcely 1 mm long, sinuses flattened.
    - 8. Hypanthium 5-winged; corolla 30 mm long, lobes 7–8 mm broad at base; leaves pinnately nerved. . . . . *C. charianthum* A. C. Smith.
    - 8. Hypanthium not winged; corolla 45–55 mm long, lobes 3 mm broad at base; leaves plinerved. . . . . *C. prietoi* A. C. Smith.
  - 7. Calyx lobes obvious, 1–7 mm long, sinuses acute or obtuse.
    - 9. Corolla 15–20 mm long; calyx continuous with pedicel. . . . . *C. loranthiflorum* Benth.
    - 9. Corolla 33 mm or more long; calyx articulate with pedicel.
      - 10. Calyx and corolla covered by gland-tipped hairs; Venezuela. . . . . *C. glanduliferum* Maguire, Steyerl., & Luteyn.
      - 10. Calyx and corolla without gland-tipped hairs; Ecuador and Peru.
        - 11. Leaves 6–12 cm long, plinerved.
          - 12. Hypanthium conspicuously 10-costate; calyx lobes ca. 6 mm long; corolla weakly ventricose, ca. 6 mm in diameter near base; filaments ca. 3 mm long. . . . . *C. calycinum* (A. C. Smith) Sleumer.
          - 12. Hypanthium terete or only inconspicuously 5-angled; calyx lobes 2–3.5 mm long; corolla strongly ventricose, 8–17 mm in diameter near base; filaments ca. 5 mm long. . . . . *C. ventricosum* A. C. Smith.
        - 11. Leaves 2–6 cm long, pinnately nerved.
          - 13. Leaves revolute and usually serrate or crenulate; hypanthium narrowly winged; calyx lobes ca. 2 mm or less long. . . . . *C. alatum* (Hoer.) Sleumer.
          - 13. Leaves flat and entire; hypanthium terete or only angled, not winged; calyx lobes 5–7 mm long.
            - 14. Hypanthium and corolla terete; calyx lobes marginally glandular; corolla essentially glabrous; filaments connate. . . . . *C. nubigenum* A. C. Smith.
            - 14. Hypanthium and corolla 5-angled; calyx lobes eglandular; corolla villose; filaments distinct. . . . . *C. campii* A. C. Smith.
  - 1. Leaves cordate and usually amplexicaul.
    - 15. Calyx limb very conspicuous, lobes at least 10 mm long.
      - 16. Hypanthium terete.
        - 17. Leaves usually densely soft-pilose beneath; bracteoles median, 5–8 mm long; calyx lobes 10–17 mm long; filaments distinct. . . . . *C. callistum* A. C. Smith.
        - 17. Leaves essentially glabrous beneath; bracteoles apical, up to 17 mm long; calyx lobes 10 mm long; filaments connate. . . . . *C. pensile* (A. C. Smith) A. C. Smith.
      - 16. Hypanthium 10-costate.
        - 18. Floral bracts 4.5–7 cm long, persistent and covering flowers at anthesis; bracteoles 3.5–4.5 × 1 cm; pedicels 10–12 mm long. . . . . *C. megabracteatum* Luteyn.

18. Floral bracts 2–2.5 cm long, caducous; bracteoles 1.5–2.5 × 0.3–0.5 cm; pedicels 30–40 mm long. . . . . *C. peruvianum* Gmelin.
15. Calyx limb comparatively inconspicuous, lobes 1–7 mm long.
19. Floral bracts 40–50 mm long, persistent and covering flowers at anthesis. . . . . *C. nodosum* Luteyn.
19. Floral bracts 2–8 mm long, usually caducous and much shorter than flowers at anthesis.
20. Leaves shallowly cordate, only slightly amplexicaul; inflorescences fasciculate. . . . . *C. lanigerum* (Sleumer) Luteyn.
20. Leaves deeply cordate, strongly amplexicaul; inflorescences racemose.
21. Leaves bullate, apically long-acuminate, basally auriculate with the lobes well separated, not imbricate. . . . . *C. ferreyrae* Luteyn.
21. Leaves flat, apically obtuse or acute, basally auriculate-clasping with the lobes conspicuously imbricate.
22. Branches and leaves glabrous beneath; leaves 9–13.5 × 5–7 cm; hypanthium ± terete, inconspicuously costate; calyx lobes wide spreading, usually reflexed at anthesis. . . . . *C. silvicola* A. C. Smith.
22. Branches and leaves shortly white-pilose beneath; leaves 5–7.5 × 3–4.5 cm; hypanthium conspicuously 10-costate; calyx lobes spreading or erect but not reflexed at anthesis. . . . . *C. amplexicaule* A. C. Smith.

## NEW TAXA

*Ceratostema ferreyrae* Luteyn, sp. nov.

FIGURE 1.

A *C. lanigero* foliis profunde cordatis amplexicaulibus longe acuminatis bullatis nec cordatis vix amplexicaulibus breviter acuminatis, inflorescentiis racemosis nec fasciculatis, et distributione geographica differt.

Shrub; stems subterete, smooth, nitid, grayish- to reddish-brown when dry, glabrous; twigs subterete, complanate, minutely striate, densely pilose-hirsute with unicellular white hairs to 1.2 mm long. Leaves with petiole 3–5 mm long, subterete, flattened abaxially, rugose, hirsute; blade narrowly ovate to lanceolate, 12–20 × 3–5.5 cm, coriaceous, bullate, the apex long-acuminate, the base broadly and deeply cordate, auriculate with lobes well separated, amplexicaul, the margin entire, the surfaces weakly hirsute along veins, the venation pinnate, with 1 or 2 lateral veins per side but these anastomosing near base to form reticulate pattern throughout, midrib and lateral veins usually conspicuously impressed above and raised beneath, veinlets slightly raised on both surfaces. Inflorescence solitary, axillary, racemose, all portions hirsute with unicellular white hairs, 3- or 4-flowered, flowers clustered distally; rachis 2–2.5 cm long, terete, striate; floral bracts narrowly lanceolate, long-acuminate, 4–5 mm long; pedicels 3.5–4.5 cm long, subterete, striate; bracteoles basal, 1.5–3 mm long, aristate. Calyx conspicuously articulate with pedicel, 6.5–7 mm long, the hypanthium subcylindrical, ca. 4 mm long, 10-costate, the limb campanulate, ca. 2.5–3 mm long including lobes, the lobes triangular, acute, ca. 2 mm long, the sinuses acute; corolla subcylindrical, basally swollen, 43–45 mm long, the tube red when fresh, the lobes narrowly triangular, long-acuminate, 15–17 mm long,

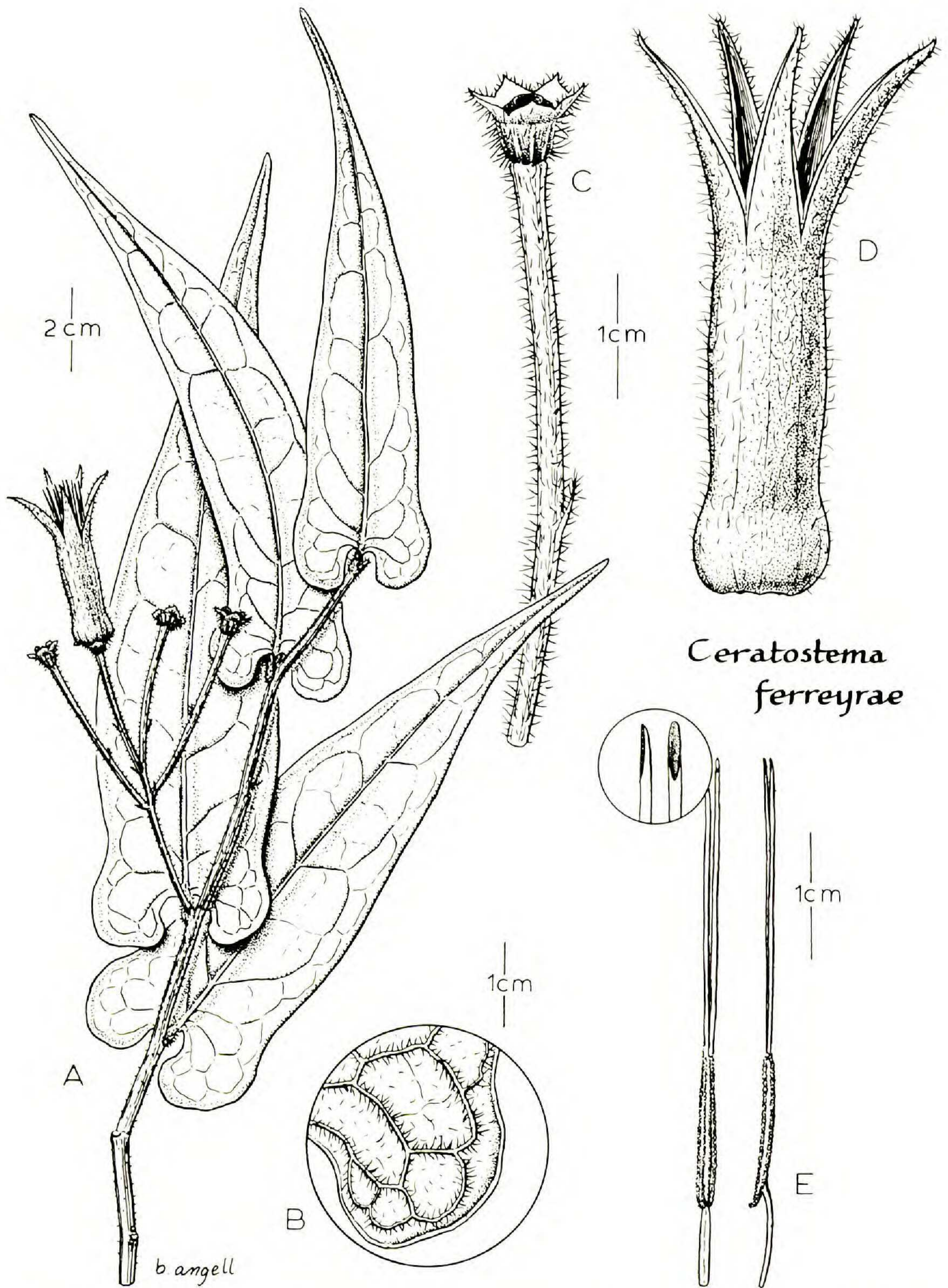


FIGURE 1. *Ceratostema ferreyrae* (from holotype): A, habit; B, close-up of leaf underside; C, calyx, pedicel, and bracteole; D, corolla; E, stamens, front and lateral views, with inset of dehiscence clefts.

purple when fresh; stamens 10, equal, ca. 40 mm long, the filaments distinct, ca. 6 mm long, the anthers ca. 35 mm long (including very slender tubules), with thecae 11–12 mm long, strongly papillose, dehiscence by subterminal, oblique clefts ca. 1 mm long; style equaling corolla, ca. 43–45 mm long. Fruits not seen.

TYPE. Peru, San Martín, Lamas, near tunnel between Tarapota and Yurimaguas, subtropical forest, 1100–1200 m alt., 2 Oct. 1973, *R. Ferreyra 18279* (holotype, NY, photo NY neg. 11115; isotype, USM).

*Ceratostema ferreyrae* is characterized by its narrowly ovate, long-acuminate, cordate-auriculate, amplexicaul leaves; costate hypanthium; inconspicuous calyx limb with short lobes; long corolla; minute floral bracts; and hirsute vestiture. It seems to be without close relatives, although its position in the key is probably indicative of general relationships. It is known only from the type collection.

*Ceratostema ferreyrae* is named in honor of Dr. Ramón Ferreyra, former director of the Herbario San Marcos (USM), who has been so helpful to itinerant botanists and has assisted me in many ways when I have been in Peru.

***Ceratostema nodosum*** Luteyn, sp. nov.

FIGURE 2A–C.

A C. megabracteato bracteis floralibus cuspidatis vel breviter acuminatis nec longe acuminatis, calycibus brevioribus (14 nec 28 mm longis), lobis brevioribus (2–2.5 nec 15–25 mm longis), sinibus late rotundatis nec acutis, corollis teretibus nec angulatis, basi cylindricis nec plus minusve gibbosis, secus lobos nec prope basem pilosis differt.

Terrestrial shrub 1–2.5 m tall; stems and twigs subterete, bluntly angled, densely white-pilose with unicellular hairs to 1.3 mm long. Leaves with petiole 2–5 mm long, terete, rugose, densely white-pilose; blade oblong, ovate, or elliptic, (4–)7–15 × (2.5–)3–7(–8) cm, coriaceous, the apex acute or short-acuminate, rarely obtuse or rounded, the base deeply cordate, auriculate with lobes well separated, amplexicaul, the margin entire, the upper surface short-pilose along veins proximally, the lower surface short-pilose throughout, the venation pinnate, with 3 or 4 lateral veins per side, these red when fresh, midrib and lateral veins impressed above and raised beneath, veinlets raised on both surfaces. Inflorescence solitary, axillary, racemose, ca. 15- to 20-flowered, nodding at anthesis but erect afterward; rachis 2–4(–5.5) cm long, subterete, bluntly angled, densely silky-pilose; floral bracts lanceolate to oblanceolate, 4–5 × 2–3.5 cm, membranaceous, the apex abruptly short-acuminate and somewhat mucronate, the venation prominent, the surfaces short-pilose, lower one pale green to rose-red when fresh, upper one rose-red; pedicels 10–12 mm long, 4 mm in diameter, subterete, densely silky-pilose; bracteoles located near or above middle of pedicel, lanceolate, 3–3.5 cm long, apically acute or short-acuminate, short-pilose on both surfaces. Calyx articulate with pedicel, 11–14 mm long, pale green when fresh, densely short-pilose; the hypanthium subcylindrical, ca. 6–7 mm long, 10-costate, the limb campanulate, ca. 5–7 mm

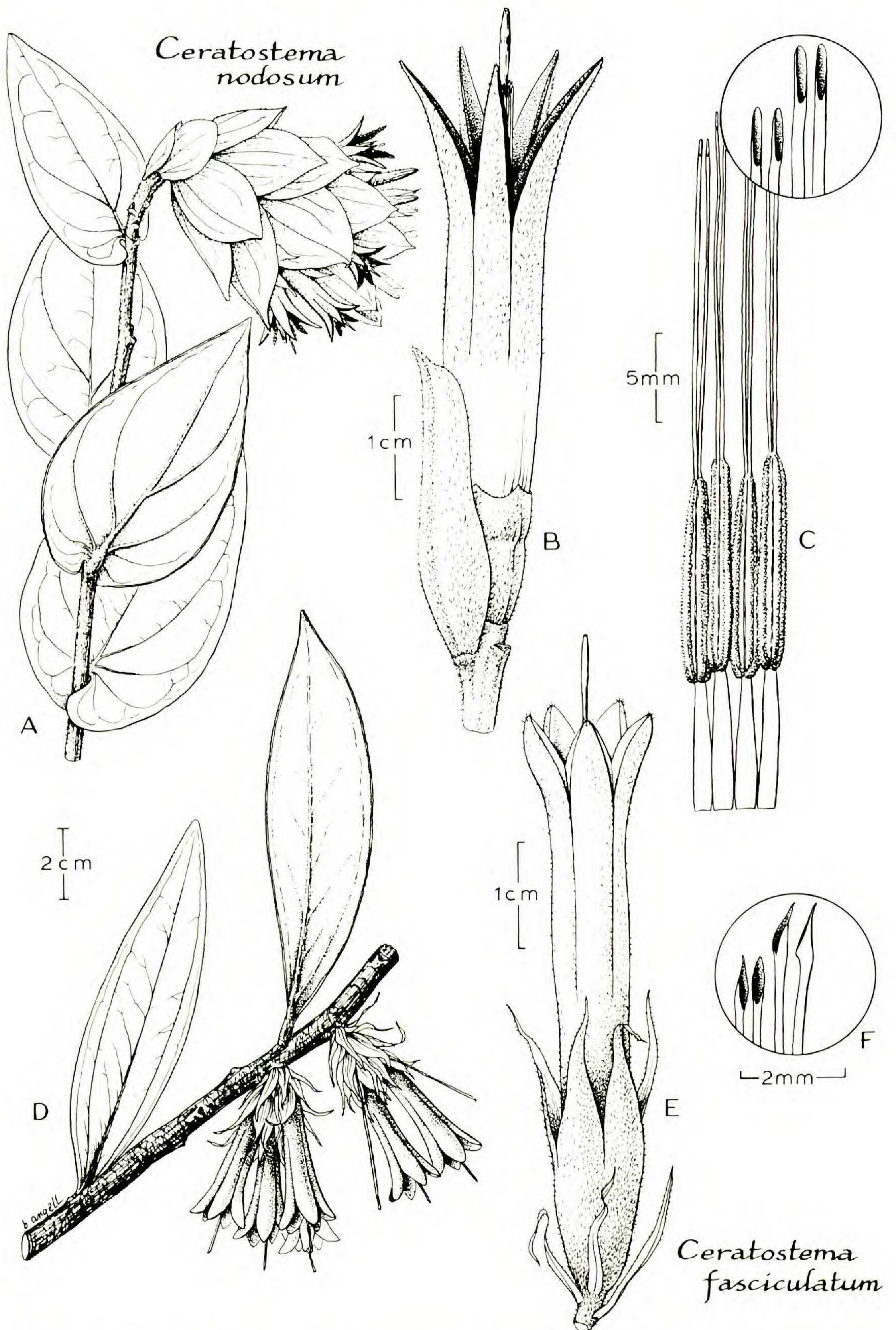


FIGURE 2. A–C, *Ceratostema nodosum* (from holotype): A, habit; B, flower, pedicel, and bracteole; C, stamens, front view, with inset of dehiscence clefts. D–F, *Ceratostema fasciculatum* (from holotype): D, habit; E, flower, pedicel, bracteoles, and floral bract; F, dehiscence clefts of stamens.

long including lobes, the lobes broadly triangular, acute, ca. 2–2.5 mm long, the sinuses broadly rounded; corolla cylindrical, terete, 41–45 mm long, ca. 8 mm in diameter, red when fresh, glabrous except short-pilose along lobes, the lobes narrowly triangular, long-acuminate, 12–13 mm long, dark purple within when fresh; stamens 10, alternately slightly unequal, ca. 39–40 mm long, the filaments distinct, ca. 9–10 mm long, glabrous, the anthers ca. 31–32 mm long (including slender tubules), with thecae 11–12 mm long, strongly papillose, dehiscence by subterminal, oblique clefts ca. 1 mm long; disc cupular, glabrous; style exserted, ca. 46–49 mm long. Fruits not seen.

TYPE. Ecuador, Napo-Pastaza, Baeza–Tena road, 25–28 km S of bridge in Cosanga, 1375–1460 m alt., 10 Jan. 1979, *J. L. Luteyn & M. Lebrón-Luteyn* 6745 (holotype, NY; isotypes, AAU, CAS, E, GH, L, MO, P, QCA, US).

ADDITIONAL SPECIMENS EXAMINED. **Ecuador.** NAPO-PASTAZA: Salcedo-Napo, trail to Tena, 2390–2590 m, 7 Feb. 1977 (fl.), *Boeke* 941 (AAU, NY, QCA); same location as type, *Luteyn & Lebrón-Luteyn* 6739 (AAU, NY, QCA). TUNGURAHUA: Cordillera de Llanganates, valley of Río Sangarinas (Desaguadero), "La Trinca," 3000 m, 24 Nov. 1939 (fl.), *Asplund* 9843 (L, S).

*Ceratostema nodosum* is characterized by its large, pilose, cordate-auriculate, amplexicaul leaves; relatively inconspicuous calyx limb and lobes; large, persistent floral bracts and bracteoles; and short pedicels. Superficially it resembles *C. megabracteatum* Luteyn, also from eastern Ecuador, in habit and coloration of flowers and bracts, but the differences are numerous (see diagnosis).

***Ceratostema fasciculatum* Luteyn, sp. nov.**

FIGURE 2D–F.

Ab aliis *Ceratostematis* speciebus hac notarum combinatione distinguitur: folia lanceolato-elliptica; bracteae ut bracteolae calycisque lobi anguste triangulares longe acuminati; corollae lobi pro rata breves.

Terrestrial shrub with branches to 0.75 m long; mature stems terete, brown when dry, glabrous; twigs complanate, bluntly angled, rugose, reddish brown when dry, densely short-pilose with unicellular hairs ca. 0.5 mm long. Leaves with petiole 5–8 mm long, terete, rugose, densely short-pilose; blade lance-elliptic, 9–13 × 3–5 cm, coriaceous, the apical portion acute although apex often blunt, the base cuneate, short-attenuate, the upper surface glabrous, the lower surface softly and densely short-pilose, the venation 3-plinerved from near base, midrib and lateral veins impressed above and raised beneath, veinlets impressed or slightly raised above and slightly raised beneath. Inflorescence solitary, axillary but often on older wood in axils of fallen leaves, fasciculate with 4 to 6 flowers; floral bracts narrowly ovate to nearly linear-lanceolate, long-acuminate, 20–25 mm long, ca. 3 mm broad at base, membranaceous, brownish when fresh, ciliate; pedicels ca. 6–12 mm long, subterete, striate, short-pilose; bracteoles located medially on pedicel, like floral bracts except 15–20 mm long. Calyx inconspicuously articulate with pedicel, 20–25 mm long, pale green when fresh, the hypanthium subcylindrical, ca. 3 mm long, terete, densely short-white-pilose, the limb cylindrical-campanulate, 17–22 mm long including lobes, moderately short-pilose, the lobes narrowly triangular,

long-acuminate, 15–18 mm long, striate, the sinuses acute; corolla tubular, 38–43 mm long, bluntly angled, carnose, white at extreme base and between lobes but elsewhere bright red when fresh, sparsely puberulent, the lobes spreading, narrowly triangular, 4–7 mm long; stamens 10, alternately slightly unequal, ca. 40 mm long, the filaments distinct, ca. 9–10 mm long, white when fresh, the anthers ca. 33 mm long (including very narrow tubules), golden-orange when fresh, with thecae ca. 12 mm long, strongly papillose, dehiscence by subterminal, oblique, slightly flaring clefts ca. 0.75 mm long; disc cupular, glabrous; style long-exserted, ca. 50–53 mm long. Fruits not seen.

TYPE. Ecuador, Zamora/Chinchipec, Loja–Zamora road, km 29–31, ca. 2–4 km E of Sabanilla, 1700–1750 m alt., 1 Jan. 1979, *J. L. Luteyn, M. Lebrón-Luteyn, & B. McAlpin 6633* (holotype, NY; isotype, AAU).

*Ceratostema fasciculatum* is characterized by its lance-elliptic leaves; narrowly triangular, long-acuminate floral bracts, bracteoles, and calyx lobes; fasciculate inflorescences; and relatively short corolla lobes. It is known only from the type collection, found in a remnant patch of forest along a steep slope. The old, persistent inflorescences were infested with tiny ants. It seems to be without close relatives.

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